IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| Application No. | : 10/518,241 | Confirmation No. | : 8336 |
| First Named Inventor | : Roger P. DUFFY | | |
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| TC/A.U. | : 1794 | | |
| Examiner | : W. Watkins III | | |
| Docket No. | : 038665.55712US | | |
| Customer No. | : 23911 | | |
| Title | : Improvements Relating to Composite Curing | | |

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellant requests a review of the final rejection set forth in the Office Action dated March 19, 2009. No amendments are being filed with this Request, and this Request is being filed with a Notice of Appeal.

The final rejection of Claims 1, 2, 4-9, 11-15 and 17-21 as being unpatentable over Kromrey in view of the Cole et al and Muir et al patents under 35 U.S.C. §103(a) does not set forth a *prima facie* case of obviousness and ought to be withdrawn at this stage without the need for an appeal.

The final rejection maintains that a semi-rigid layer is found in the Kromrey patent and that the layer 107 is of #1581 breather material which is 0.2 - 0.6 mm (0.009-0.027 inches) thick. The cited but not applied Seal et al patent discloses #1581 material that is 0.008-0.012 inches thick. There is no suggestion in either patent that the material has any rigidity. Indeed, Kromrey's breather structure is described at col. 2, lines 52-58 to be non-supporting" and "flexible". It is self-evident that the layer 107 of Kromrey must be highly flexible because the #1581 material is just a woven or non-woven fabric which left to its own devices will sag or drape. The mere fact that the material is made of glass fiber does not of necessity make it semi-rigid, and semi-rigidity cannot be implied.

Previously, Applicants noted that the Kromrey patent is addressed to the goal of solving the common problem of composites that allow vapor and fluid flow but does not teach the claimed invention. That statement is as equally apt now given that the final rejection relies upon two additional patents in an effort to bridge the differences between Kromrey's molding method where it would make no sense to place holes in the product in order to vent gases and the claimed invention herein which specifies that the breather sheet has outer layers of a semi-rigid material and is configured to allow volatiles to pass through the sheet from one outer layer to the other.

The Kromrey method is concerned with the manufacture of precision molded products from composite materials as used, for example, in this aerospace industry so as to have good surface finish. The Kromrey breather sheet comprises the flexible fabric layer 107, a layer of small beads 110, at least one layer of larger beads 113 and a layer of glass fiber 119 on the outer surface of the layer(s) of larger beads. The function of the fabric layer 107 and the layer of small beads 110 is to present a relatively smooth surface to the prepeg to be molded so that its surface is not embossed by the larger beads during molding. There is not just a single layer of beads. Indeed, at least two layers of beads are fundamental to Kromrey's teachings as Claim 1 in the Kromrey patent makes clear.

The Kromrey method has the option of venting gases laterally through the breather structure, something not available to the Muir et al perforated label discussed below, because the latter is embedded in the container material where the only available option available to perforate the label itself.

Nor would it have been obvious to substitute Cole et al's metal mesh layer for Kromrey's glass bead layer. Consider that the Cole et al method focuses on molding of hardboard and other formable boards, these being materials for the building and construction industries. A characteristic of such boards is that only one of the two surfaces of the board need to have a good standard finish. The finish of the other surface, which is not seen in normal use, is unimportant and it

thus can be heavily embossed during the forming process without detriment to the acceptability of the product; Cole et al (col. 5, lines 42-46) teaches that the requirement is simply that the rear of the board is not embossed so heavily that the markings show through on to the front of the board. Because the Cole et al method is unconcerned about the rear surface of the board, given that it is making a building industry product, materials familiar to the building industry are used, specifically screens (meshes) "varying in size from standard aluminum window screen to half-inch galvanized hardware cloth".

Cole et al's mesh is the totality of their solution to the problem of ventilating gases from a hardboard-forming process. The bead layers and cover layers of the Kromrey method are the totality of his solution to a gas-ventilation problem in a different field which has widely different requirements, namely, the need for a much higher standard of finish and, in particular, the need to avoid marking the product. These requirements are lacking in Cole et al's process which is relatively crude and operates at dimensional tolerances orders of magnitude greater than those that Kromrey must achieve. One skilled in the art would not have examined Kromrey's breather structure in detail and asked herself whether or how Cole et al's mesh could be imported into it, particularly as Cole et al admit that their process marks the product.

If one skilled in the art were for some illogical reason to have contemplated putting Cole et al's mesh into Kromrey's breather structure, she first would have to disregard the teachings of Kromrey, where the bead layers are considered essential. The use of a mesh instead of the beads leads to product marking. She would recognize that the thin and flexible layer 107 of Kromrey would also not resist the relatively widely-spaced and locally-concentrated forces that would be applied to the product by the mesh. And there is no teaching of semi-rigid outer layers of Kromrey. Both layers 107, 119 are clearly flexible; layer 119 is specifically described at col. 4, line 16 as "compliant".

Assuming one of ordinary skill in the art had had the benefit of hindsight to combine aspects of Cole et al's method with that of Kromrey, she would only

have contemplated replacing the entire Kromrey breather structure 107, 110, 113, 119 with Cole et al's single layer of mesh 26. The result would be a useless heavily-marked product which would destroy Kromrey's objectives. Even if that skilled person replaced only the bead layers 100, 113 of Kromrey by Cole et al's mesh 26, the resulting thin layer 107 would be unworkable because it would not prevent the mesh marking the product surface.

That hypothetical combination certainly would not produce the claimed invention in which the volatiles are permitted to escape by passing through the sheet from one outer layer to the other, i.e. through the thickness of the sheet. In both Kromrey and Cole et al, the breather sheet is configured so that the main or only flow of volatiles is laterally within the sheet to its edges. The flow through the thickness of Kromrey's breather structure proceeds only as far as the large beads 113 and is then diverted laterally (col. 4, lines 8-14).

In both Kromrey and Cole et al, the passage of air and volatiles is primarily (and thus "freely") directed laterally of the breather structure. Any flow is through the thickness of the structure is incidental. Adding Muir et al to the Kromrey/Cole et al hypothetical combination would not have remedied this deficiency. In Muir et al, the volatiles-generating structure is embedded in the product and lateral discharge of these volatiles is impossible as a practical matter.

The Muir et al patent merely discloses a perforated embedded label for a blow-molded container, and this label is not a breather sheet for use in molding a product. To the contrary, it is part of the product itself. This references does not teach putting holes in a breather layer. Thus, one skilled in the art of breather sheets, i.e. Kromrey's field, would not have considered Muir et al's teachings at all. As noted above, Kromrey and Cole et al direct escaping volatiles laterally of the breather structure, rather than through its thickness. Muir et al is totally irrelevant, and certainly does not teach the use of two perforated outer layers, as it uses only one. And there is also no teaching whatsoever of how the holes should be positioned relative to internal passages in the breather structure.

In summary, impermissible hindsight would have to have been employed in combining the Cole et al and/or Muir et al teachings with those of Kromrey. Even with the benefit of such hindsight, however, the resulting hypothetical structure and method would not be the claimed invention herein. The final rejection does not establish a *prima facie* case of obviousness.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #038665.55712US).

Respectfully submitted,

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